ABSTRACT

Fluoroelastomers are combined with chemical agents in the presence of supercritical carbon dioxide by swelling the fluoroelastomer with the carbon dioxide, and impregnating the swollen fluorelastomer with the chemical agent. The process can be conducted at relatively low temperatures and pressures such that degradation of the fluoroelastomer or the chemical agent is avoided. The chemical agent is preferably a curing agent which includes functional groups that interact with functional groups on the fluoroelastomer to create an association therebetween. The process is enhanced by pre-dissolving the chemical agent in a solvent which does not solubilize the fluoroelastomer to a great extent, but which is itself soluble in supercritical carbon dioxide. In addition, during combining, mechanical mastication is performed to create a free flowing powder.